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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,896	12/20/2001	George Zarris	Q67643	2077

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EXAMINER

HUGHES, DEANDRA M

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,896

Applicant(s)

ZARRIS ET AL.

Examiner

Deandra M Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/16/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. In response to applicant's remarks (received 7/16/04; lines 2-3), acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Certified copies of the priority documents (Application Number: 0031508.5; Great Britain; filed Dec. 22, 2000).

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2, 7, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Foursa (US 6,717,963 filed Jul. 14, 2000).

With regard to claim 1, Foursa discloses a wideband Raman amplifier including:

- a laser pump source for producing wideband pump radiation signal (#320);
- means for adjustable independent power control of (via #322; see also discussion col. 3, lines 55-60; "resulting power spectrum can be controlled, in a known manner, by readjustment of the electrical power of *individual pump outputs* used with spectrum shaping filters 322 incorporated at the output of the combined pump source"; emphasis mine) each of a plurality of different radiation wavelengths (fig. 7) of said wideband pump radiation signal.

With regard to claim 2, Foursa discloses only a single pump source (fig. 5).

With regard to claim 7, Foursa discloses that the pump coupled to the signal to be amplified (via #314).

With regard to claim 12, Foursa discloses a wideband Raman amplifier including means for independently adjusting the magnitudes (via #322) of a plurality of different wavelengths (fig. 7) of a wideband pump radiation signal (#320) to alter the amplifier gain profile during (#322 operates on the pump signal when the amplifier is on) amplifier operation.

4. Claims 1, 5, 8 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Onaka (US 6,510,000 filed Oct. 24, 2000).

With regard to claim 1, Onaka discloses a wideband Raman amplifier including:

- a laser pump source for producing wideband pump radiation signal (fig. 9);
- means for adjustable independent power control of (col. 15, lines 25-35: "control unit 2 controls the output power and wavelength of *each* excitation light source"; emphasis mine) each of a plurality of different radiation wavelengths ($\lambda_1 - \lambda_8$ are different wavelengths) of said wideband pump radiation signal.

With regard to claim 5, Onaka discloses independent power control via variable optical attenuators (e.g. fig. 1, #71-#73).

With regard to claim 8, the control unit (fig. 1, #2) is the control means.

With regard to claim 11, Onaka discloses an apparatus operating according to a method including the step of producing from a pump laser source a wideband pump radiation signal (fig. 9) by providing independently adjustable optical feedback (note the

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gratings 51-58 that produce the feedback) to the laser source at a plurality of different wavelengths (gratings shift wavelengths) of said wideband pump radiation signal.

With regard to claim 12, Onaka discloses a wideband Raman amplifier (fig. 1) including means for independently adjusting the magnitudes of a plurality of different wavelengths (col. 15, lines 25-35) of a wideband pump radiation signal to alter the amplifier gain profile during (the control unit, 2, controls the pumps in response to measurements from the photodiodes in optical power unit #300; these measurements take place while the amplifier is operating) amplifier operation.

5. Claims 1 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Evans (US 6,657,774 filed Aug. 18, 2000).

With regard to claim 1, Evans discloses a wideband Raman amplifier including:

- a laser pump source for producing wideband pump radiation signal (22 and 22A);
- means for adjustable independent power control of (24) each of a plurality of different radiation wavelengths of said wideband pump radiation signal.

With regard to claim 9, the independent power control is a switch (24).

With regard to claim 10, the control means (controller) selectively controls the switch.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hecht et al. (Understanding Fiber Optics, 1993).

With regard to claims 3-4, Foursa does not specifically disclose that the spectral shaping filter is a grating (i.e. a type of reflector). However, Hecht teaches, as is well known in the art, the use of gratings as spectral shaping filters (pg. 419, 2nd paragraph). Gratings are reflectors (reflection=feedback) that shift the wavelength of the reflected signal. It would have been obvious to one of ordinary skill in the art (e.g., an optical engineer) to use gratings as spectral shaping filters for the advantage of flattening the amplifier gain.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "for each reflector" in the last line. There is insufficient antecedent basis for this limitation in the claim.

In the interest of compact prosecution, the Examiner examined claim 6 as if it depended upon claim 3. Claim 3 provides sufficient antecedent basis for the phrase "for each reflector" in claim 6.

Allowable Subject Matter

10. Claim 13 is allowed.

11. As it is best understood, claim 6 is objected to as being dependent upon a rejected base claim (claim 1), but would be allowable if rewritten in independent form including all of the limitations of the base claim (claim 1) and any intervening claims (*claim 3*).

Please note that since the Examiner indicated allowability of claim 6, examined as best as it is understood (see paragraph 9 above), claim 6 would be allowable only if it includes all the limitations of the base claim (claim 1) and the assumed intervening claim (claim 3).

Information Disclosure Statement

12. The information disclosure statement (IDS) received Jul. 16, 2004 has been considered by the examiner and is found to be cumulative to the art of record.

Response to Arguments

13. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayashi discloses a Raman amplifier pumped by a wideband pump. Shimojoh discloses a wideband Raman amplifier. However, Shimojoh was filed after the filing date of the instant application.

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15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

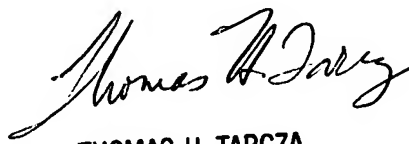
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DMH


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